

CLAIMS

What is claimed is:

1. A pre-clean chamber for pre-cleaning a surface prior to metallization of the surface, comprising:

a chamber having a chamber interior;

a wafer heating apparatus provided in said chamber interior for supporting a wafer; and

a source RF power supply operably engaging said chamber for applying source RF energy to said chamber.

2. The pre-clean chamber of claim 1 further comprising a controller operably engaging said wafer heating apparatus for controlling a temperature of said wafer heating apparatus.

3. The pre-clean chamber of claim 1 further comprising a bias RF power supply operably connected to said wafer heating apparatus for applying bias RF power to said wafer heating apparatus.

4. The pre-clean chamber of claim 3 further comprising a controller operably engaging said wafer heating apparatus for controlling a temperature of said wafer heating apparatus.

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5. A pre-clean chamber for pre-cleaning a surface prior to metallization of the surface, comprising:

a chamber having a chamber interior;

a high-temperature electrostatic chuck provided in said chamber interior for supporting a wafer; and

a source RF power supply operably engaging said chamber for applying source RF energy to said chamber.

6. The pre-clean chamber of claim 5 further comprising a controller operably engaging said chuck for controlling a temperature of said chuck.

7. The pre-clean chamber of claim 5 further comprising a bias RF power supply operably connected to said chuck for applying bias RF power to said chuck.

8. The pre-clean chamber of claim 7 further comprising a controller operably engaging said chuck for controlling a temperature of said chuck.

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9. A method of pre-cleaning a wafer, comprising the steps of:

providing a pre-clean chamber comprising a wafer heating apparatus;

placing said wafer in said pre-clean chamber;

heating said wafer to a selected processing temperature; and

pre-cleaning said wafer by generating a plasma in said pre-clean chamber.

10. The method of claim 9 further comprising the step of applying a bias power to said wafer.

11. The method of claim 9 wherein said selected processing temperature is at least about 150 degrees C.

12. The method of claim 11 further comprising the step of applying a bias power to said wafer.

13. The method of claim 9 further comprising the step of degassing said wafer in said pre-clean chamber by heating said wafer to a temperature of about 300 degrees C.

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14. The method of claim 13 further comprising the step of applying a bias power to said wafer.

15. The method of claim 9 wherein said plasma is a plasma selected from the group consisting of hydrogen plasma and ammonia plasma.

16. The method of claim 15 further comprising the step of applying a bias power to said wafer.

17. The method of claim 15 wherein said selected processing temperature is at least about 150 degrees C.

18. The method of claim 17 further comprising the step of applying a bias power to said wafer.

19. The method of claim 15 further comprising the step of degassing said wafer in said pre-clean chamber by heating said wafer to a temperature of about 300 degrees C.

20. The method of claim 19 further comprising the step of applying a bias power to said wafer.